

Comments on NJDEP White Paper: VOC004 - Floating Roof Storage of Petroleum Products

Control Measure Summary from NJDEP White Paper	Emissions (tons/yr) in New Jersey (from NJDEP White Paper)		Comments on NJDEP White Paper
1. External floating roof tanks (XFRT) legs to be equipped with slotted guide poles, or leg socks 2. 95% control eff. for floating roof tank degassing (FRTDG) emissions 3. 95% control eff. for floating tank cleaning (FRTC) emissions			Most floating roof tanks that have slotted guide poles are subject to NSPS (Ka, Kb) and/or NESHAP (Refinery MACT I, SOCMIHON) regulations that already required the control devices indicated in the White Paper.
2002 existing measures in New Jersey: 2002 Total Uncontrolled VOC emissions (335.2 tpy): Currently, there are no control measures for VOC emissions from the following storage operations: external floating roof legs or sleeves, floating roof tank degassing and tank cleaning operations in New Jersey.	VOC Uncontrolled: 2002 XFRT: 2002 FRTDG: 2000 FRTC:	335.2 tpy 320 tpy (0.87 tpd/tank)/ 200 tanks 8.50 tpy/18 tanks 6.70 tpy/tank	The NJDEP does not provides supporting documentation for the sources of this emissions data and therefore there is insufficient data to provide detailed comments. Even tough the control devices are not required by NJDEP regulations, they are already required for many existing tanks by federal rules. See comment above..
Candidate measure 1: Install Slotted Guide Poles or Leg Socks Measure ID: SS-07 - Slotted Guide Poles Sleeves or Leg Socks1 This measure is part of the Bay Area Air Quality Management District (BAAQMD) requirement under Regulation 8, Rule 5 for external floating roof tanks (XFRTs) for petroleum refinery products, which was implemented in 2000 as a control measure for their one-hour ozone attainment SIP. Slotted guide poles sleeves, or leg socks, are designed to significantly reduce emissions from holes or gaps around slotted guide poles legs. Retrofit kits are readily available, and easy to install with no downtime for the tank. Emission Reductions: 0.87 tpd or 320 tpy Based on BAAQMD 200 product-specific XFRTs. Average emissions from organic storage tanks in the Bay Area were estimated to be 12.6 tons per day (4,599 tpy) in 1999. Emission reductions will probably be greater than 320 tpy for New Jersey, as our storage tanks are not product-specific. For example, NJEMS database lists 260 XFRTs storing refinery products with vapor pressure < 11.0 psia. Estimated cost of control: \$400,000 total one-time cost to industry Cost effectiveness: \$1250/ton of VOC emission reduced Timing of Implementation: 2009? Implementation Area: Entire State of New Jersey	VOC 2002 Base: 2009 Reduction: 2009 Remaining:	4,599 tpy <u>-2,560 tpy</u> 2,039 tpy	<p>There is no supporting documentation to validate the emission reductions indicated in the White Paper. Most likely, the emissions mentioned in the White Paper are from the entire tank and not only from the slotted guide poles.</p> <p><i>Until baseline VOC emissions are established, any presentation of VOC emission reductions or cost effectiveness is premature and can not be substantiated.</i></p>

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1. External floating roof tanks (XFRT) legs to be equipped with slotted guide poles, or leg socks 2. 95% control eff. for floating roof tank degassing (FRTDG) emissions 3. 95% control eff. for floating tank cleaning (FRTC) emissions			Most floating roof tanks that have slotted guide poles are subject to NSPS (Ka, Kb) and/or NESHAP (Refinery MACT I, SOCMIHON) regulations that already required the control devices indicated in the White Paper.
Candidate measure 2: Control for Tank Degassing Measure ID: Vent headspace vapors to a control device (min. 95% control efficiency) Adopt similar performance standards as the May 19, 2005 proposed amendments of the San Joaquin Valley Air Pollution Control District Rule 4623 proposed changes for VOC storage tanks. The proposal is to install control device (w/min 95% eff) for floating roof-degassing emissions from refinery and petroleum by-products storage tanks. Floating roof degassing is when the roof is lowered to the tank bottom to evacuate all vapors. The Valley did not control degassed emissions until recently, when a study for Rule 4623 Amendments was conducted and found that it was economically feasible to control tank degassing emissions with min 95% efficiency for VOC. Emission Reductions: 8.1 tpy of VOC per 18 tanks. Estimated cost of control: The study found that almost half a ton of VOC per tank could be controlled for an average tank size of 2.765 million gals or 62,832 bbl. Actually: 944 lbs VOC/tank = (average volume of 62,832 bbl) * (EF of 0.015 lbs VOC/bbl). The annualized Baseline Emissions (with 18 tanks degassed annually) = 8.5 tpy. Cost effectiveness: From \$2,288 to \$4,290/ton of VOC emissions reduced per tank. Timing of Implementation: 2009? Implementation Area: Entire State of New Jersey	VOC 2002 Base: Annual Reduction: Remaining:	8.5 tpy <u>-8.1 tpy</u> 0.4 tpy	The NJDEP should follow the appropriate rule development process for establishing regulatory standards, and not adopt rules proposed in other States, specially from the West Coast area which has different Ozone attainment status, and thus require more rigorous controls to achieve attainment.
Candidate measure 3: Control for VOC storage tank cleaning emissions Measure ID: Vent cleaning vapors to a control device (min. 95% control efficiency) Emission Reductions: Uncontrolled total emissions from a single tank cleaning yield about 13,424 lbs (6.712 tons) VOC. The annual reduction will be 6.7 tpy * 95% = 6.4 tpy per tank. Since routine annual emissions from breathing and working losses are about 2,044 lbs (1.022 tpy VOC), then the total emissions from a single cleaning event yields more than 6 years of routine emissions. Control Cost: Cost analysis will be conducted for determination of NJ feasibility upon receipt of vendor cost data. Timing of Implementation: 2009? Implementation Area: Entire State of New Jersey	VOC 2002 Base: Annual Reduction: Remaining:	6.7 tpy <u>- 6.4 tpy</u> 0.3 tpy	The reported emissions from tank cleaning events appear to be way over stated. NJDEP should provide the supporting documents justifying the alleged emission reductions.
Policy Recommendation of State/Workgroup Lead: Implementation of these three recommended measures will yield a minimum 95% reduction of VOC by 2009. Brief Rationale for Recommended Strategy: First, requiring leg socks on the floating roof legs will significantly reduce associated fugitive emissions. And second, there are no regulatory requirements for reporting emissions from storage tank degassing and cleaning operations under Sub 16, which regulates VOC emissions. Implementing these recommended changes as revisions of Sub 16 will help achieve the ozone attainment goal.			Requiring that sources <i>report</i> VOC emissions from tank degassing and cleaning operations will not necessarily help New Jersey achieve its ozone attainment goal. Before any regulatory action, the NJDEP needs to provide detailed information on baseline VOC emissions and control costs. This regulatory process should be in conjunction with the regulated industry, who can offer their expertise in storage tank operations and emission estimating methodologies.